

## 5 CLAIMS

What is claimed is:

1. A method for determining private information and risk attitudes for  
10 bidders comprising:
  - a) analyzing auction data from previously conducted utility-dependent  
auctions and previously conducted utility-independent auctions;
  - b) determining private information for said bidders using bids submitted  
in said utility-independent auctions; and
  - 15 c) determining risk attitudes for said bidders using bids from said utility-  
dependent auctions.
2. The method of Claim 1 further comprising the steps of:
  - d) conducting additional utility-independent auctions when said auction  
20 data from said previously conducted utility-independent auctions is not  
sufficient for determining said private information for said bidders; and
  - e) determining private information for said bidders using said auction  
data from said previously conducted auctions and auction data from said  
auctions conducted in step d) when said auction data from said previously  
25 conducted utility-independent auctions is not sufficient for determining said  
private information for said bidders.
3. The method of Claim 2 wherein said determination of private  
information for said bidders further comprises the step of generating a table  
30 that indicates the joint distribution of private information for said bidders.

5           4. The method of Claim 2 wherein said determination of private information for said bidders further comprises the step of generating a graph that indicates the joint distribution of private information for said bidders.

10           5. The method of Claim 2 further comprising the steps of:  
f) conducting additional utility-dependent auctions when said auction data from said previously conducted utility-dependent auctions is not sufficient for determining risk attitudes for said bidders; and

15           g) determining risk attitudes for said bidders using said auction data from said previously conducted auctions and auction data from said auctions conducted in step f) when said auction data from said previously conducted utility-dependent auctions is not sufficient for determining said risk attitudes for said bidders.

20           6. The method of Claim 5 wherein said determination of risk attitudes for said bidders further comprises the step of generating a table that indicates said risk attitudes for said bidders.

25           7. The method of Claim 5 wherein said determination of risk attitudes for said bidders further comprises the step of generating a graph that indicates said risk attitudes for said bidders.

30           8. The method of Claim 3 wherein said auction data from said previously conducted utility-dependent auctions and previously conducted utility-independent auctions includes an item identifier, the number of submitted bids, the number of bidders, and the characteristics of each bidder.

5           9. The method of Claim 6 wherein step b) further comprises using statistical density estimation techniques to nonparametrically estimate the joint distribution of bidders' private information.

10           10. The method of Claim 9 wherein step c) further comprises using a "quantile matching" method to nonparametrically estimate risk attitudes for bidders.

15           11. In a computer system including a processor coupled to a bus, and a memory unit coupled to the bus for storing information, a computer-implemented method for determining private information and risk attitudes for bidders comprising the steps of:

- a) analyzing auction data from previously conducted utility-dependent auctions and previously conducted utility-independent auctions;
- 20           b) determining private information for said bidders using bids submitted in said utility-independent auctions; and
- c) determining risk attitudes for said bidders using bids from said utility-dependent auctions.

25           12. The computer-implemented method of Claim 11 further comprising the steps of:

- d) conducting additional utility-independent auctions when said auction data from said previously conducted utility-independent auctions is not sufficient for determining said private information for said bidders; and
- 30           e) determining private information for said bidders using said auction data from said previously conducted auctions and auction data from said auctions conducted in step d) when said auction data from said previously

- 5 conducted utility-independent auctions is not sufficient for determining said private information for said bidders.

13. The computer-implemented method of Claim 12 further comprising the steps of:

- 10 f) conducting additional utility-dependent auctions when said auction data from said previously conducted utility-dependent auctions is not sufficient for determining risk attitudes for said bidders; and
- g) determining risk attitudes for said bidders using said auction data from said previously conducted auctions and auction data from said auctions conducted in step f) when said auction data from said previously conducted utility-dependent auctions is not sufficient for determining said risk attitudes for said bidders.
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14. The computer-implemented method of Claim 12 wherein said determination of risk attitudes for said bidders further comprises the step of generating a table that indicates said risk attitudes for said bidders.
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15. The computer-implemented method of Claim 12 wherein said determination of risk attitudes for said bidders further comprises the step of generating a graph that indicates said risk attitudes for said bidders.
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16. A computer-readable storage medium storing instructions that, when executed by a computer, cause the computer to perform a method for determining private information and risk attitudes for bidders comprising the step of:
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- 5 a) analyzing auction data from previously conducted utility-dependent  
 auctions and previously conducted utility-independent auctions;
- b) determining private information for said bidders using bids submitted  
 in said utility-independent auctions; and
- c) determining risk attitudes for said bidders using bids from said utility-  
 10 dependent auctions.

17. The computer-readable storage medium of Claim 16 wherein said  
 method further comprises the steps of:

- d) conducting additional utility-independent auctions when said auction  
 15 data from said previously conducted utility-independent auctions is not  
 sufficient for determining said private information for said bidders; and
- e) determining private information for said bidders using said auction  
 data from said previously conducted auctions and auction data from said  
 auctions conducted in step d) when said auction data from said previously  
 20 conducted utility-independent auctions is not sufficient for determining said  
 private information for said bidders.

- 18. The computer-readable storage medium of Claim 17 wherein said  
 determination of private information for said bidders further comprises the  
 25 step of generating a table that indicates the joint distribution of private  
 information for said bidders.

19. The computer-readable storage medium of Claim 17 wherein said  
 method further comprises the steps of:

5 f) conducting additional utility-dependent auctions when said auction data from said previously conducted utility-dependent auctions is not sufficient for determining risk attitudes for said bidders; and

g) determining risk attitudes for said bidders using said auction data from said previously conducted auctions and auction data from said auctions  
10 conducted in step f) when said auction data from said previously conducted utility-dependent auctions is not sufficient for determining said risk attitudes for said bidders.

20. The computer-readable storage medium of Claim 19 wherein step  
15 b) further comprises using statistical density estimation techniques to nonparametrically estimate the joint distribution of bidders' private information.

21. The computer-readable storage medium computer-readable storage medium of Claim 20 wherein step c) further comprises using a  
20 "quantile matching" method to nonparametrically estimate risk attitudes for bidders.